National Aeronautics and Space Administration

Office of the Administrator
Washington, DC 20546-0001

February 14, 2011

Dr. Kenneth Ford
Chairman
NASA Advisory Council
Washington, DC 20546

Dear Dr. Ford:

Enclosed are NASA's responses to four recommendations from the NASA Advisory Council meeting held August 5-6, 2010, at the Jet Propulsion Laboratory. Please do not hesitate to contact me if the Council would like further background on these responses. I appreciate the Council's thoughtful consideration leading to these recommendations and welcome its continued observations and advice concerning NASA's plans and programs.

I look forward to working closely with you and the members of the Council in the future.

THANKS FOR A GREAT COUNCIL MEETING LAST WEEK!

Sincerely,

Charles F. Bolden, Jr.
Administrator

4 Enclosures:
1. 2010-03-06 (CSC-02) Defining the NASA Market
2. 2010-03-07 (CSC-03) Concept of Operations and Acquisition Approach
3. 2010-03-08 (CSC-04) Federal Aviation Administration (FAA) Licensing
4. 2010-03-09 (CSC-05) Business Case for Commercial Crew Transportation

Tracking Number 2010-03-06 (CSC-02)
Defining the NASA Market

NASA Advisory Council Recommendation:
The Council recommends that NASA assess and define the NASA traffic requirements for crew transport to and from the International Space Station (ISS) and other Low-Earth Orbit (LEO) destinations prior to issuing a draft solicitation for the Commercial Crew Transportation program. The number of flights and/or seats per year purchased by NASA on U.S. commercial spaceflight vehicles has a significant impact on the business plans of and availability of private investment for commercial providers. In assessing its requirements, NASA should consider how the availability of commercial space transportation capabilities could change the concept of operation of the ISS to get the most out of its infrastructure.

NASA Response:
NASA concurs with this recommendation. Crew transportation requirements for the ISS are defined through 2020 based on current operational and research requirements. Today, a total of six United States Operating Segment crewmembers are required to be rotated per year on two flights approximately six months apart. As part of NASA's strategic planning process, NASA will consider how commercial space transportation capabilities could affect or change the ISS concept operations.

From a Human Research Program (HRP) perspective, there are two ISS mission lengths that enable HRP research: 1) six months (or longer) to simulate exploration mission lengths; and 2) three to four months to maximize the number of subjects for physiological experiments. Both of these ISS mission-length scenarios are valuable to HRP depending on the specific issue being addressed. However, increasing the number of crew rotations to four per year will essentially double the ISS cost for crew transportation, training, sustaining, and provisioning the additional crewmembers, which would amount to multiple billions of dollars in additional cost to the ISS Program.

Tracking Number 2010-03-07 (CSC-03)
Concept of Operations and Acquisition Approach

NASA Advisory Council Recommendation:
The Council recommends that NASA structure the crew transportation service acquisition approach and associated ISS concept of operations to take maximum advantage of the variety of potential commercial transportation capabilities. The Council recommends that future commercial crew transportation service solicitations simply specify the minimum and maximum number of seats to and from the ISS NASA would purchase in a given solicitation. This approach will allow bidders flexibility to structure the offer that best fits the offeror's business model.

NASA Response:
NASA concurs and plans to maximize the number of commercial partners to the greatest extent practical within budget constraints. It is our goal to enable a diverse portfolio of commercial transportation service capabilities with the intent of allowing for the commercial industry to expand their business cases to include NASA's needs, as well as those of the public. We recognize the importance of supporting the business models of various potential partners and, as such, we are establishing processes and requirements that allow for flexibility throughout the life cycle of the program.

NASA's acquisition strategy is still in development. We hope to have a better definition of the instruments (or combination of instruments), performance objectives, and safety requirements and standards in the spring of 2011 to support a solicitation for commercial crew transportation development agreements.

However, is it unlikely that NASA will only specify the minimum and maximum number of seats. NASA has already identified additional performance objectives for commercial crew systems. For example, the 2010 NASA Authorization Act requires NASA to include crew rescue requirements in any solicitation for commercial crew capabilities.

Tracking Number 2010-03-08 (CSC-04)
Federal Aviation Administration (FAA) Licensing

NASA Advisory Council Recommendation:
The Council agrees with NASA that Federal Aviation Administration (FAA) licensing of Commercial Crew services should be the "eventual state." The Council recommends that NASA engage the FAA as soon as possible to discuss FAA licensing of Commercial Crew with the goal of providing clarity to potential offerors regarding the regulatory framework for both development and operation of Commercial Crew capabilities.

NASA Response:
NASA concurs that FAA licensing of Commercial Crew services should be the "eventual state."

It is the goal of the Commercial Crew to enable a diverse portfolio of commercial transportation service capabilities with the intent of allowing for the commercial industry to expand their business cases to include NASA's needs, as well as those of the public.

Although FAA licenses are not required for launch or reentry that the Government carries out for the Government, NASA has established a close working relationship with the FAA to define the requirements, standards, and certification processes for commercial spaceflight involving crew and passengers, all which will be used by NASA to certify crew transportation systems to transport NASA and NASA-sponsored crews to the ISS. The ultimate goal of this working relationship is to optimize Government oversight of commercial providers through the use of compatible requirements, standards, and processes for certifying or licensing commercial crew flights.

Through COTS and CRS, NASA works closely with the FAA to license launch and reentry events of commercial providers. In addition, NASA and the FAA are providing mutual training opportunities for key personnel by rotating managers in positions that will promote integration between the agencies and through formal training sessions. NASA is also working closely with the FAA as it establishes its Commercial Spaceflight Technical Center at KSC. In addition, to ensure safety of crew and passengers, NASA will contribute to the FAA and to industry its expertise and lessons learned in the inherently risky environment of space.

Tracking Number 2010-03-09 (CSC-05)
Business Case for Commercial Crew Transportation

NASA Advisory Council Recommendation:
The Council recommends that NASA continue to develop internal metrics and milestones to oversee its Commercial Crew Transportation program and associated industry. Appropriate internal experts can then use these tools to measure whether NASA crew needs will be met in a timely and cost effective manner under this program. Among other things, NASA should be aware of the impact of non-human spaceflight markets, such as cargo and traditional spacecraft launch, on the ability of commercial providers to offer viable crew transportation services, the cost, reliability, and safety implications of the overall commercial space transportation business, and the impact of domestic and foreign competition.

NASA Response:
NASA concurs and plans to develop internal metrics and milestones to measure performance within the commercial crew program.

As part of each acquisition instrument, NASA will negotiate milestones for progress payments to commercial providers. The performance of these milestones will be measured for all commercial providers in NASA's investment portfolio. Additional financial metrics will be developed and analyzed by Government personnel to protect sensitive and proprietary data of the commercial providers. All impacts will be tracked through the program's risk-management process and analyzed in relation to the performance metrics.

Regarding the impact of non-human spaceflight markets, NASA, in conjunction with the FAA, is performing a Commercial Market Assessment, as required by the 2010 NASA Authorization Act. This assessment will include "...the potential non-Government market for commercially-developed crew and cargo transportation systems and capabilities, including an assessment of the ISS research and technology development capabilities and other potential activities in low-Earth orbit."